CHAPTER 6
Recommendations

Eight water source options were identified and discussed in **Chapter 5** that provide opportunities to address the water supply issues in the UEC Planning Area. The water source options were reviewed to assess their potential on a regional scale of meeting the water supply needs of the region (**Table 21**). **Table 21** indicates the ability of options to meet identified needs, except for the inland environmental needs. For inland environmental needs, the response shows the ability of that option to offset demands, primarily from the Surficial Aquifer System (SAS), thereby reducing demand and potentially enhancing nearby natural systems. The relative ability of each source option in this table was based on regional volumes (supply and demand), and does not in all cases reflect the public's sense of importance of that option. For example, significant emphasis was placed on the importance of conservation and the furthering of a conservation ethic, although from a regional perspective, and compared to other water source options; the volume of water that could be made available through conservation is relatively low. At the local level, the potential of each option may change based on the specific needs of that local situation. Elements of conservation are incorporated with the use of each of these options.

In **Table 21**, an entry of high (H) indicates the option, based on volume, has a high potential to address the associated category's water supply needs. A medium (M) entry indicates the option has a medium potential and a low entry means there is low potential to address water supply needs. The high, medium and low entries are relative to one another.

These options can be considered as a menu that local water users should consider using to meet their individual water needs. In many cases, several options will be used to meet the demands, depending on the specific situation.

Chapter 5 provided implementation strategies for each water source option to facilitate the development of that option both at the regional level (water resource development) and the local level (water supply development). Water resource development recommendations are specific implementation strategies that support water supply development and are primarily the responsibility of the District. Water supply development recommendations are the responsibility of local governments, water suppliers, water users and utilities. Water supply development projects may be eligible for District funding assistance if they meet appropriate criteria. These criteria are explained in the Funding section of this chapter. Water supply development recommendations or water source options are provided for consideration by local governments, water users and utilities.

This chapter presents the recommendations for the water resource development implementation strategies identified in **Chapter 5**. For each water source option, a description, the potential quantity of water that could be made available through that water source option and the water resource development recommendations are provided. For each water resource development recommendation, a description of the recommendation, the quantity of water to be made available, a six-year (FY 2005 through FY 2010) implementation schedule, cost, funding source and the implementing agency are provided. The District's fiscal year begins October 1st and ends September 30th. For example, fiscal year 2005 (FY 2005) begins October 1, 2004 and ends on September 30, 2005.

Costs include contract dollar estimates, cost of materials and cost-sharing with other agencies; while personnel time estimates, expressed in full-time equivalents (FTEs), represent only District staff time. Dollar costs in tables are stated in 1,000's and do not include the cost of FTEs. Total costs include monies from the District and other agencies, unless otherwise specified and may be for a time period different than FY 2005 – FY 2010. For example, the Ten Mile Creek Critical Restoration Project has been under development for several years, with construction being initiated in November 2003. The total recommendation cost is $37,000,000 while the cost for FY 2005 – FY2010 is $7,964,000. The entry of N/A denotes not applicable. The funding approach for the UEC Water Supply Plan, as well as potential funding sources for water resource development recommendations and water supply development recommendations, are described in the Funding section of this chapter.

The recommendations contained in this Plan are subject to District Governing Board approval and fiscal budgetary appropriations. As a result, the schedules identified in the Plan are subject to change based on future resource and budgetary constraints. A Five Year Water Resource Development Work Program will be developed following approval of the water supply plans.

Table 21. Potential of Water Source Options in Meeting 2025 UEC Water Supply Needs.

Water Source Option	UEC Water Supply Needs				
	Public Water Supply	**Urban Irrigation Demands**	**Agricultural Irrigation Demands**	**Freshwater Needs of Estuarine Systems**	**Inland Environ-mental Needs[c]**
Aquifer Storage and Recovery	L	L	L	H	L
Conservation[a]	L	L	L	N/A	L
Floridan Aquifer System	H	L	M	N/A	H
Reclaimed Water	L	M	L	N/A	H
Reservoirs	L	L	M	H	L
Seawater[b]	L	L	L	N/A	L
Surficial Aquifer System	M	M	L	N/A	L
Surface Water	L	L	H	H	L

L=Low; M=Medium; H=High; N/A=Not Applicable

a. Generally cost effective and although does not yield volumes comparable to other options, is considered highly effective in contributing to long-term, climate-proof resources.

b. Potentially large volume could be made available, but determined not cost effective at this time.

c. Ability of option to reduce demands from SAS, potentially enhancing nearby natural systems.

AQUIFER STORAGE AND RECOVERY

Aquifer storage and recovery (ASR) is the underground storage of injected water into an acceptable aquifer (typically the Floridan Aquifer System in south Florida) during times when water is available, and the later recovery of this water during high demand periods. In other words, the aquifer acts as an underground reservoir for the injected water, reducing water loss to evaporation.

This technology could be used for storage of treated drinking water, partially treated surface water or other treated source. Presently, there are no ASR facilities in the UEC Planning Area. Any water injected must meet all applicable state and federal regulations to ensure public health and safety.

ASR - Quantity of Water Potentially Available

The volume of water that could be made available through ASR wells depends upon several local factors, such as well yield, water availability, variability in water supply and variability in demand. Without additional information, it is not possible to accurately estimate the quantity of water that could be available through ASR. Typical

storage volumes for individual wells range from 10 to 500 million gallons per cycle or 31 to 1,535 acre-feet (Pyne, 1995). The volume of water that could be made available by any specific user must be determined through the District's Consumptive Use Permitting Program.

ASR – Water Resource Development Recommendations

Listed below is the water resource development recommendation regarding aquifer storage and recovery:

Recommendation A1: The District will provide technical assistance to utilities pursuing aquifer storage and recovery using reclaimed water in accordance with local, state and federal standards.

Description: Two potential applications of ASR were identified in the UEC Planning Area: drinking water ASR and reclaimed water ASR. For drinking water ASR, utilities whose demands are less than their allocation could store the difference in a ASR system for future use.

Reclaimed water ASR was identified as a potential option for reclaimed water storage for utilities that are experiencing seasonal reclaimed water deficits. Aquifer storage and recovery could be used for storage of excess reclaimed water, or for supplemental sources, such as storm water, for later use. There are utilities in the Tampa area that have constructed reclaimed water ASR wells and are operationally testing these systems at this time. There are no reclaimed water ASR wells in the SFWMD. There are several successful drinking water ASR wells in the District.

Each of these ASR applications would have to comply with local, state and federal standards for the protection of public health, safety and welfare.

Potential Elements:

A. Continue to work with utilities to identify opportunities for either drinking water or reclaimed water ASR.
B. Assist utilities in identifying benefits of ASR.
C. Identify the potential for District funding assistance, such as the Alternative Water Supply Grant Program, to assist utilities implementing ASR.

Total Recommendation Cost: $0

Potential Funding Sources: SFWMD

Estimated District Participation: $0 FTEs: 0.30

Implementing Agency: SFWMD

Quantity of Water To be Made Available: 0 MGD

Cost per Thousand Gallons: N/A

Table 22. Estimated Schedule and Costs for Promoting Reclaimed Water ASR.

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$0	$0	$0	$0	$0	$0	$0
FTEs	0.05	0.05	0.05	0.05	0.05	0.05	0.30

ASR – Water Supply Development Recommendations

Listed below is the water supply development recommendation regarding aquifer storage and recovery:

> Utilities should explore ASR, among other options, to extend the use of current resources in order to meet future demands, including addressing peaks in demands or in availability of resources. Aquifer storage and recovery could be used to extend drinking water reclaimed water supplies during peak demand periods.

CONSERVATION

Conservation refers to reductions in water use. Practices and technologies that provide reductions in per capita water uses consist of both long-term, permanent reductions and short term reductions, which result from temporary behavior changes. Long-term reductions generally result from implementation of technologies, such as ultra-low flow plumbing/irrigation devices and water pricing strategies that encourage efficient water use. This is in contrast to short-term water conservation measures and cutbacks made by users during water shortage situations.

Conservation – Quantity of Water Available

With effective implementation of water conservation showerhead, toilet and rain sensor retrofit programs, it is estimated that 11 million gallons per day (MGD) of water could be saved in the urban water use sector of the UEC Planning Area. This assumes 75 percent of eligible characteristic housing stock is retrofitted. In the agricultural sector, over 80 percent of the citrus acreage is currently using micro irrigation, a water-efficient technology.

Conservation – Water Resource Development Recommendations

Listed below are water resource development recommendations regarding conservation:

Recommendation C1: Continue mobile lab presence and expand Activity

Description: Currently there are two urban mobile irrigation labs funded by the District and one agricultural lab funded by USDA operating in the UEC Planning Area. The District should continue funding of the urban labs and look for opportunities to expand their activity in the region. This could include local government partnerships in funding increased lab services, particularly in newer urban communities.

Potential Elements:

A. One agricultural MIL.

B. Two urban MILs.

Total Recommendation Cost: $2,445,000

Potential Funding Sources: SFWMD, USDA, soil and water conservation districts, and county and local governments

Estimated District Participation: $696,000 FTEs: 0.60

Implementing Agency: SFWMD

Quantity of Water To be Made Available: 1.02 MGD

Cost per Thousand Gallons: Not available

Table 23. Estimated Schedule and Costs to expand Mobile Irrigation Lab Activity.

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$116	$116	$116	$116	$116	$116	$696
FTEs	0.10	0.10	0.10	0.10	0.10	0.10	0.60

Recommendation C2: Complete rulemaking for Water Conservation

Description: The District should complete the ongoing water conservation rulemaking in Chapter 40E-2, F.A.C. and Water Use Basis of Review for Water Conservation Requirements, which will focus on goal-based conservation programs for public water suppliers, and other major water users.

Potential Elements:

A. Conduct rule development workshops throughout the District.
B. Conduct rulemaking workshops throughout the District.
C. Governing Board adoption of rules.
D. Utilize public information and outreach strategies to expand awareness.
E. Meet with permit applicants as needed.

Total Recommendation Cost: $10,000

Potential Funding Sources: SFWMD

Estimated District Participation: $10,000 FTEs: 0.65

Implementing Agency: SFWMD

Quantity of Water To be Made Available: 0 MGD

Cost per Thousand Gallons: N/A

Table 24. Estimated Schedule and Costs for Completion of Rulemaking for Water Conservation.

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$0	$5	$5	$0	$0	$0	$10
FTEs	0.00	0.25	0.10	0.10	0.10	0.10	0.65

Recommendation C3: Continue Water Savings Incentive Funding Program.

Description: The District should continue and enhance the Water Savings Incentive (WaterSIP) Funding Program, to facilitate implementation of cost-effective indoor and outdoor retrofits, such as plumbing and rain sensor programs, in the UEC Planning Area. This cost-share program may benefit public agencies, such as local governments, water utilities or private entities, such as homeowners associations. The Governing Board has approved funding up to 50 percent of a program's cost, or $50,000, whichever is less.

Potential Elements:

A. Annually, solicit water conservation proposals from utilities, local governments and large water users.

B. Rank projects based on relative criteria.

C. Governing Board authorization of projects to be funded.

D. Complete projects within 12 months.

Total Recommendation Cost: $5,000,000*

Potential Funding Sources: SFWMD

Estimated District Participation: $5,000,000* FTEs: 2.00*

Implementing Agency: SFWMD

Quantity of Water to be Made Available: 6.60 MGD* (based on two years of program experience and projected savings as a result of increased funding over time)

Cost per Thousand Gallons: Not available

Table 25. Estimated Schedule and Costs for Continuing Water Savings Incentive Program.*

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$500	$750	$750	$1000	$1,000	$1,000	$5,000
FTEs	0.20	0.20	0.30	0.30	0.50	0.50	2.00

*Districtwide funding for this program may begin sooner depending on successes and available funds.

Recommendation C4: Expand water conservation outreach and education.

Description: The District, in cooperation with local governments, utilities, large water users and water industry professional organizations, should expand water conservation outreach and education through funding partnerships.

Potential Elements:

A. Coordinate project priorities with District's Department of Public Information and Regional Service Centers.

B. Develop partnerships with local governments, utilities and other large water users.

C. Implement Outreach/Education recommendations of the Florida Water Conservation Initiative and continually expand awareness of the progress of the Joint Statement of Commitment.

D. Support efforts of major water users to promote best management practices for water conservation by industry.

Total Recommendation Cost: $2,600,000*

Potential Funding Sources: SFWMD, local governments, utilities, large water users and water industry professional organizations

Estimated District Participation: $2,600,000* FTEs: 1.30*

Implementing Agency: SFWMD

Quantity of Water To be Made Available: TBD

Cost per Thousand Gallons: Not available

Table 26. Estimated Schedule and Costs for Expanding Water Conservation Outreach and Education.*

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$300	$300	$500	$500	$500	$500	$2,600
FTEs	0.20	0.30	0.20	0.20	0.20	0.20	1.30

*Districtwide

Conservation – Water Supply Development Recommendations

Listed below are water supply development recommendations regarding conservation:

A. Local government and utilities should evaluate conservation measures appropriate for their jurisdictional area, and implement cost-effective indoor and outdoor measures. These should include general policy considerations and technology retrofits as described in this Plan.

B. Local governments should consider developing and/or enhancing existing Xeriscape™ ordinances to address water- conserving landscape installation for new construction to maximize water savings in initial design and operation of both residential and commercial sites.

C. Conversion of the remaining flood-irrigated citrus to micro irrigation should continue on a voluntary basis, where appropriate.

D. Local governments and utilities should consider continued development and implementation of water conservation public education programs in cooperation with the District.

FLORIDAN AQUIFER SYSTEM (FAS)

The Upper Floridan Aquifer is the principal source of supply to users of the Floridan Aquifer System (FAS) in the planning area. The top of the FAS lies approximately -300 feet National Geodetic Vertical Datum (NGVD) in the northwest corner of the planning area, then dips to the southeast to more than -900 feet NGVD in southeast Martin County. For most of the planning area, the Floridan Aquifer is artesian; the wells flow naturally at land surface without the need for pumps. Water in the FAS is brackish (saline) in the UEC Planning Area. Additional information on the hydrogeology of the FAS in the UEC Planning Area is provided in the Support Document.

The Upper Floridan Aquifer is used extensively by citrus growers in the UEC Planning Area, primarily as a supplemental irrigation source when surface water availability is limited and as a primary source in areas where no surface water is available. Water from the Floridan is generally blended with surface water or water from the Surficial Aquifer to reduce potential problems associated with salinity. Water quality is critical in maintaining the sustainability of this resource. If the water becomes too salty, excess salinity of irrigation water can result in decreased citrus production/yield, reduction in root growth, and can be fatal to specific root stocks (Syvertsen *et al.* 1989). Construction of storage reservoirs associated with the Indian River Lagoon – South Study will enhance surface water availability and should reduce the use of the Floridan Aquifer by the citrus industry.

Most of the coastal utilities in the region including Fort Pierce Utilities Authority, Port St. Lucie, Martin County Utilities, South Martin Regional Utility, Plantation Utilities and Sailfish Point currently use water from the Floridan Aquifer as a source of drinking water. A number of smaller private coastal facilities use water from the Floridan Aquifer as a primary source for potable water. Water from the aquifer is nonpotable throughout the planning area and requires desalination or blending prior to potable use. Utilities in the UEC Planning Area use reverse osmosis treatment to provide potable quality water. Most of the coastal utilities plan to use water from the Floridan Aquifer to meet increases in potable water demand in their service area.

FAS – Quantity of Water Available

The 1998 Plan analysis indicated the Floridan Aquifer has the potential of supplying, at a minimum, sufficient water to meet all the 2020 projected public water supply demands (64 MGD), while meeting the supplemental water needs (125 MGD) of agricultural users during a 1-in-10 drought event. This assumes withdrawals will be obtained from existing or proposed wells in agricultural areas, and from wells in proximity of existing Surficial Aquifer System wells for public water supply.

FAS – Water Resource Development Recommendations

Listed below are water resource development recommendations regarding the Floridan Aquifer:

Recommendation F1: Continue to collect data from the Comprehensive Regional Floridan Aquifer Monitoring Well Network.

Description: The District should continue to collect water level, water quality and water use data from the Comprehensive Regional Floridan Aquifer Network established pursuant to the 1998 UEC Plan, including public water supply wells. Data from the network will be used to better understand the relationships between water levels, water quality and water use.

Potential Elements:

A. Collect and analyze water level, water quality and water use data from network.

B. Maintain electronic data loggers, flow meters and well heads.

C. Prepare reports presenting data and analysis.

D. Use these data to develop an enhanced computer model of the FAS in time for the next update of this Plan.

Total Recommendation Cost: $744,000

Potential Funding Sources: SFWMD

Estimated District Participation: $744,000 FTEs: 2.40

Implementing Agency: SFWMD

Quantity of Water To be Made Available: 0 MGD

Cost per Thousand Gallons: N/A

Table 27. Estimated Schedule and Costs for Comprehensive Regional Floridan Aquifer Network.

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$122	$122	$125	$125	$125	$125	$744
FTEs	0.40	0.40	0.40	0.40	0.40	0.40	2.40

Recommendation F2: Develop a density dependent solute transport groundwater model for next UEC Plan Update for predictive analysis purposes.

Description: The District will develop and calibrate a density dependent groundwater flow model for the Floridan Aquifer. This model will be an "inset model" developed from a larger scale regional Floridan Aquifer model. The District will use this model to support development of the next update of the UEC Water Supply Plan.

Potential Elements:

A. Establish more recorder wells to collect data need for this model.

B. Develop statement of work and select contractor to develop the model.

C. Contractor develops and calibrates model, and provides documentation for model.

D. District staff runs calibrated model to simulate different scenarios for next update of UEC Water Supply Plan.

E. District staff, in conjunction with interested public, evaluates model outputs.

Total Recommendation Cost: $200,000

Potential Funding Sources: SFWMD

Estimated District Participation: $200,000 FTEs: 2.60

Implementing Agency: SFWMD

Quantity of Water To be Made Available: 0 MGD

Cost per Thousand Gallons: N/A

Table 28. Estimated Schedule and Costs for Development of Density Dependent Groundwater Model.

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$50	$100	$50	$0	$0	$0	$200
FTEs	0.3	0.30	1.00	1.00	0	0	2.60

Recommendation F3: Implement a Floridan Aquifer exploratory well program to gather additional hydrogeologic data for development of a Floridan Aquifer density dependent groundwater model.

Description: The District will implement a Floridan Aquifer exploratory well drilling program to gather Floridan Aquifer hydrogeologic information. There are currently only two sites in the planning area where the District has gained comprehensive knowledge of the Floridan Aquifer System. This recommendation incorporates three Floridan Aquifer exploratory well sites in the planning area. This includes construction of a multi-zone monitoring well, geophysical logging and aquifer performance testing at each site.

Potential Elements:

A. Select drilling sites (3).
B. Select sites and obtain access agreements.
C. Develop scope of work and select contractor.
D. Mobilize drilling site and complete work.
E. Install recorders on wells, incorporate wells into monitoring network, and conduct sampling quarterly.
F. Repeat process for second and third sites.
G. Compile information and prepare report.

Total Recommendation Cost: $2,250,000

Potential Funding Sources: SFWMD

Estimated District Participation: $2,250,000 FTEs: 1.40

Implementing Agency: SFWMD

Quantity of Water To be Made Available: 0 MGD

Cost per Thousand Gallons: N/A

Table 29. Estimated Schedule and Costs for Implementation of Floridan Aquifer Exploratory Well Program.

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$750	$750	$750	$0	$0	$0	$2,250
FTEs	0.40	0.40	0.40	0.20	0.00	0.00	1.40

Recommendation F4: Conduct Floridan Aquifer tracer tests to better understand flow paths in Floridan Aquifer.

Description: The District will conduct tracer tests in the Floridan Aquifer at two sites. The tracer tests will show preferential flow paths within the aquifer and allow the District to calculate dispersivity for the density dependent model as recommended.

Potential Elements:

A. Select tracer test sites.

B. Select contractor to conduct tracer tests.

C. Evaluate results from tests and prepare a report.

Total Recommendation Cost: $200,000

Potential Funding Sources: SFWMD

Estimated District Participation: $200,000 FTEs: 0.70

Implementing Agency: SFWMD

Quantity of Water To be Made Available: 0 MGD

Cost per Thousand Gallons: N/A

Table 30. Estimated Schedule and Costs for Floridan Aquifer Tracer Tests.

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$10	$70	$120	$0	$0	$0	$200
FTEs	0.20	0.20	0.20	0.10	0.00	0.00	0.70

Recommendation F5: Refine Floridan well inventory and increase public awareness of presence of Floridan wells when land is converted to urban development.

Description: Through renewal of consumptive use permits in the UEC Planning Area, the District will refine the existing inventory of Floridan Aquifer wells. To ensure that Floridan wells are appropriately decommissioned as land used for citrus production is developed into urban uses, the Floridan well inventory will be employed. Developers will be notified of the presence of Floridan wells on properties through the District's Environmental Resource Permitting process and/or its CUP Program.

Potential Elements:

A. Refine Floridan well inventory based on CUP renewal information.

B. Provide Floridan well inventory data to the Environmental Resource Permitting Program.

C. Educate developers on the location of Floridan wells on properties.

Total Recommendation Cost: $0

Potential Funding Sources: SFWMD

Estimated District Participation: $0 FTEs: 0.35

Implementing Agency: SFWMD

Quantity of Water To be Made Available: 0 MGD

Cost per Thousand Gallons: N/A

Table 31. Estimated Schedule and Costs for Refining Floridan Well Inventory.

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$0	$0	$0	$0	$0	$0	$0
FTEs	0.10	0.05	0.05	0.05	0.05	0.05	0.35

FAS – Water Supply Development Recommendations

Listed below are water supply development recommendations regarding the Floridan Aquifer:

A. Landowners with Floridan wells that are not actively used and/or in a state of disrepair should decommission these wells in accordance with appropriate rules and regulations. The citrus industry may want to pursue a state appropriation for funding assistance for a regional approach towards decommissioning Floridan wells.

B. Local water users and utilities should consider involving the District in development of their FAS well drilling programs for water supply, ASR and wastewater effluent disposal to collect FAS water quality, water level and hydrologic information that could be used in predictive analysis and development or refinement of a FAS model.

RECLAIMED WATER

Reclaimed water is wastewater that has received at least secondary treatment and is reused after flowing out of a wastewater treatment plant (Chapter 62-610, F.A.C.). Water reuse is the deliberate application of reclaimed water for a beneficial purpose, in compliance with the FDEP and water management district rules. Potential uses of reclaimed water include landscape irrigation, including medians, residential lots, golf courses and other green space, agricultural irrigation, groundwater recharge via percolation ponds, industrial uses, environmental enhancement and fire protection.

Reclaimed Water – Quantity of Water Available

Twenty-seven of the twenty-eight wastewater facilities with a capacity of 0.10 MGD or greater in the UEC Planning Area employed reuse for all or a portion their disposal. About 40 percent (8.10 MGD) of the wastewater treated in the planning area in 2003 was reused for a beneficial purpose with over 5.43 MGD used for irrigation. In 2003, reclaimed water was used for irrigation of over 5,400 residential lots, 20 golf courses, three parks, five schools and a citrus grove (FDEP Reuse Inventory, 2003). About 2.20 MGD was used for groundwater recharge and the remainder was used for industrial and toilet flushing purposes. The results of the analysis indicates that current reuse in the UEC Planning Area, primarily irrigation of golf courses, has contributed to reduced potential resource impacts. It is estimated that wastewater flows will increase to about 40 MGD by 2025 – all potentially reusable water.

Reclaimed Water – Water Resource Development Recommendations

Listed below are water resource development recommendations regarding Reclaimed Water:

Recommendation R1: The District will continue to encourage reclaimed water interconnects between utilities, where appropriate, to maximize the use of reclaimed water.

Description: Interconnections between reclaimed water systems could increase the volume of reclaimed water being used by providing an alternative to deep well injection when wastewater flows exceed reclaimed water demand. By interconnecting reuse systems, reclaimed water could be transferred to an adjoining utility that may be experiencing a deficit of reclaimed water or as reclaimed water storage, stored and retrieved, for use at a later date. For facilities that have minimal reuse capabilities, interconnects with a utility that is doing reuse will make beneficial use of this water. Reclaimed water interconnects that result in regional benefits should be considered for water resource development funding from the District similar to recommendations in the 1998 Plan.

Potential Elements:

A. Continue to work with utilities to identify opportunities for reclaimed water interconnects.

B. Assist utilities in identifying benefits of reclaimed water interconnects.

C. Identify the potential for District funding assistance, such as the Alternative Water Supply Funding Program and water resource development funds.

Total Recommendation Cost: $0*

Potential Funding Sources: SFWMD

Estimated District Participation: $0* FTEs: 0.30

Implementing Agency: SFWMD

Quantity of Water To be Made Available: 0 MGD

Cost per Thousand Gallons: N/A

Table 32. Estimated Schedule and Costs for Encouraging Reclaimed Water Interconnects.*

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$0	$0	$0	$0	$0	$0	$0
FTEs	0.05	0.05	0.05	0.05	0.05	0.05	0.30

*Potential alternative water supply funding or future water resource development funding to be identified.

Recommendation R2: Modify WaterSIP application criteria to encourage efficient use of reclaimed water.

Description: Utilities are encouraged become more efficient in the use of reclaimed water. This could include installing meters and establishing volume based rates and/or establishing application rates consistent with District allocation criteria. The District should modify project scoring criteria for the WaterSIP funding program to give greater points for efficient use of reclaimed water.

Potential Elements:

A. Modify scoring criteria, as appropriate, to increase scoring for reclaimed water projects involving installation of meters and establishment of volume-based rate structures.

B. Implement new criteria.

Total Recommendation Cost: $0

Potential Funding Sources: SFWMD

Estimated District Participation: $0 FTEs: 0.15

Implementing Agency: SFWMD

Quantity of Water To be Made Available: TBD

Cost per Thousand Gallons: TBD

Table 33. Estimated Schedule and Costs for Revising WaterSIP Scoring Criteria.

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$0	$0	$0	$0	$0	$0	$0
FTEs	0.15	0.00	0.00	0.00	0.00	0.00	0.15

Recommendation R3: The District will provide technical assistance to local governments in establishing mandatory reuse zones.

Description: Mandatory reuse zones are geographic areas designated by local governments through ordinance where the use of reclaimed water is required. Mandatory reuse zones are very effective in increasing reuse, especially in undeveloped areas where installation of reclaimed water distribution systems and use of reclaimed water would be required at the time of development for projects located in the zone. It is much more cost effective to install reclaimed water distribution systems at the time of development compared to retrofitting existing developments.

Potential Elements:

A. Educate utilities and local governments on the Mandatory Reuse Zone concept.

B. Provide technical support to entities interested in pursuing mandatory reuse zone, including examples and contacts with entities who have implemented mandatory similar zones.

Total Recommendation Cost: $0

Potential Funding Sources: SFWMD

Estimated District Participation: $0 FTEs: 0.35

Implementing Agency: SFWMD

Quantity of Water To be Made Available: 0 MGD

Cost per Thousand Gallons: N/A

Table 34. Estimated Schedule and Costs for promoting Mandatory Reuse Zones.

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$0	$0	$0	$0	$0	$0	$0
FTEs	0.05	0.10	0.05	0.05	0.05	0.05	0.35

Reclaimed Water – Water Supply Development Recommendations

A. Local governments should consider adopting building codes and land development regulations requiring proposed projects, exceeding a certain acreage threshold, to construct reclaimed water infrastructure and use reclaimed water when it becomes available.

B. Utilities should incorporate water supply considerations in development of reclaimed water programs. In developing reclaimed water programs, the resource efficiency concept of utilizing reclaimed water for wellfield recharge to minimize impacts to the resources should be considered.

C. Utilities should consider supplemental sources and interconnects with other utilities to maximize the volume of reclaimed water that is reused. Aquifer storage and recovery, among other options, should be explored to extend the use of current resources in order to meet future demands, including addressing peaks in demands or in availability of resources.

RESERVOIRS

This option involves the capture and storage of excess surface water during rainy periods and subsequent release during drier periods for environmental and human uses. Regionally, surface water storage could be used to attenuate freshwater flows to the St. Lucie River and Estuary, southern Indian River Lagoon and the Northwest Fork or the Loxahatchee River and Estuary during rainy periods and to provide beneficial flows during drier times. In addition, these facilities could increase surface water availability for current and projected uses, and decrease the demand on aquifer systems. However, evaporative and seepage losses could significantly effect water availability and need to be considered.

Reservoirs - Quantity of Water Potentially Available

Reservoirs are considered a management option in that these systems allow more efficient use of other sources, such as surface water. The Comprehensive Everglades Restoration Plan (CERP) Indian River Lagoon – South Project Implementation Report estimates the project could increase surface water availability by 26,300 acre-feet per year (23.48 MGD). District staff estimate this could result in a decrease of 19 percent in

Floridan Aquifer usage for agriculture, further assuring the water needs of the agricultural community.

Reservoirs – Water Resource Development Recommendations

Regional storage through reservoirs is addressed in the Surface Water recommendations.

Reservoirs – Water Supply Development Recommendations

Listed below is the water resource development recommendation regarding Reservoirs:

> Agricultural operations could incorporate water conservation and water supply considerations in design of new or retrofitted surface water management systems through best management practices.

SEAWATER

This option involves using seawater from the Atlantic Ocean as a raw water source. The ocean (seawater) is an unlimited source of water from a quantitative perspective; however, removal of salts (desalination) is required before potable or irrigation uses are feasible. To accomplish this, a desalination treatment technology would have to be used, such as distillation, reverse osmosis (RO) or electrodialysis reversal (EDR).

Seawater - Quantity of Water Potentially Available

The volume of water available from the ocean is unlimited and could meet the needs of this region through the year 2025.

Seawater Recommendations

It was concluded that seawater is a potential alternative source of water that needs future consideration; however, not in the 2025 planning horizon. Based on the projected water demands, other water sources are available to meet projected needs that have lower treatment costs.

SURFACE WATER

This option involves surface water and surface water related environmental supply strategies to ensure the needs of the environment are met. Strategies include minimum flows and levels (MFLs), water reservations, environmental restoration plans and CERP projects. In the UEC Planning Area, surface water includes direct withdrawal of water from regional surface water sources, primarily the C-23, C-24, C-25 and C-44 Canals, as well as related efforts that involve the capture and storage of excess surface water during rainy periods and subsequent release during drier periods for environmental and human uses. Regionally, this includes reservoirs for storage of surface water that could be used to attenuate freshwater flows to the St. Lucie River and Estuary, the Indian River Lagoon and the Northwest Fork of the Loxahatchee River during rainy periods and meet minimum flows during drier periods. In addition, these facilities could increase surface water availability for other uses. In Martin and St. Lucie Counties, increased surface water availability could reduce the use of the Floridan Aquifer for agricultural irrigation. This option also includes increasing flexibility in surface water management by connecting surface water basins.

This 2004 Update supports implementation of CERP to address freshwater regulatory discharges from Lake Okeechobee to the St. Lucie River via the C-44 Canal. The CERP will create more flexibility in the operations of the regional water management system, including storage, additional conveyance systems, and improvements to existing conveyance systems, among others. The portions of CERP, such as the Indian River Lagoon – South and Northern Palm Beach County Part 1 projects, located in the UEC Planning Area are itemized in the recommendations. Implementation of CERP, which is greatly supported from the UEC Region, will not be listed as an individual recommendation in this Plan since it will be incorporated into the Lower East Coast Regional Water Supply Plan.

Surface Water - Quantity of Water Potentially Available

Surface water from the C-23, C-24, C-25 and C-44 Canals are primary surface water sources for agricultural irrigation and inflows to the St. Lucie River and Estuary and Indian River Lagoon. The Loxahatchee River receives inflows from the C-18 Canal and several other tributaries. Significant surface water storage will be provided in the future. Development of operating protocols for these storage systems will determine increases in surface water availability. The CERP Indian River Lagoon – South Project Implementation Report estimates the project could increase surface water availability by 26,300 acre-feet per year (23.48 MGD). District staff estimate this could result in a decrease of 19 percent in Floridan Aquifer usage for agriculture, further assuring the water needs of the agricultural community. Water for natural systems from new projects will be reserved from allocation by the SFWMD. The volume of water that may be

allocated from the remaining water by any specific user must be determined through the District's CUP Program.

Surface Water - Water Resource Development Recommendations

Listed below are water resource development recommendations regarding the Surface Water:

Recommendation S1: Continue implementation of the Northern Palm Beach County Comprehensive Water Management Plan.

Description: The Northern Palm Beach County Comprehensive Water Management Plan (NPBCCWMP) was accepted by the District's Governing Board in May 2002 and is being implemented. Approximately 44,800 acre-feet of storage has been purchased in the L-8 Reservoir. The G-160 Loxahatchee Slough Structure has been constructed and the G-161 Structure is in design and scheduled for completion in 2005. The Plan's recommendations will create improvements to storage and water conveyance infrastructure that will capture water currently lost to tide in the wet season and provide supplemental supplies in the dry season - meeting environmental needs and projected urban and agricultural demands.

Potential Elements:

A. G-161 Structure.

B. M Canal widening.

C. Control 2 Structure.

D. L-8 Reservoir.

Total Recommendation Cost: The cost of this project will be determined in the CERP North Palm Beach County Part 1 Project Implementation Report (PIR).

Potential Funding Sources: SFWMD, State of Florida, federal government, local governments

Estimated District Participation: $ TBD FTEs: TBD

Implementing Agency: SFWMD

Quantity of Water to be Made Available: TBD

Cost per Thousand Gallons: N/A

Table 35. Estimated Schedule and Costs for Implementation of the Northern Palm Beach County Comprehensive Water Management Plan.*

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$	$	$	$	$	$	$0
FTEs	0.00	0.00	0.00	0.00	0.00	0.00	0.00

*Cost to be determined in the CERP North Palm Beach County Part 1 PIR.

Recommendation S2: Complete the CERP North Palm Beach County Project Part 1 Project Implementation Report and implement the findings.

Description: The District and USACE are developing the CERP North Palm Beach County Project Part 1 PIR. This will serve as a continuation of the Northern Palm Beach County Comprehensive Water Management Plan.

The PIR will document the project elements, cost and schedule, as well as describe the funding sources and implementing agencies. The amount of water that will be reserved for the environment and also made available as water supply will be determined during the PIR process. The CERP – North Palm Beach County Project Part 1 is scheduled for completion and operation in 2014 at an initial estimated cost of $425 million.

Potential Elements: TBD during PIR

Total Recommendation Cost: $425,079,000

Potential Funding Sources: SFWMD/USACE

Estimated District Participation: $212,539,500 FTEs: TBD

Implementing Agency: SFWMD/USACE

Quantity of Water to be Made Available: TBD

Cost per Thousand Gallons: TBD

Table 36. Estimated Schedule and Costs to Complete the CERP North Palm Beach County Project Part 1 Project Implementation Report and Implement the Findings.*

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$	$	$	$	$	$	$0
FTEs	0.00	0.00	0.00	0.00	0.00	0.00	0.00

*Elements, phasing of construction, FTEs and costs to be determined in PIR. Project implementation runs through 2014.

Recommendation S3: Develop a Restoration Plan for the Loxahatchee River.

Description: The District, in cooperation with other agencies and stakeholders, will develop a restoration plan for the Loxahatchee River that incorporates environmental water needs, while maintaining existing levels of flood protection and public water supply. A draft Restoration Plan may be completed at the end of 2004.

Potential Elements:

A. Summary of available data.

B. Modeling results.

C. Plan recommendations.

Total Recommendation Cost: $ TBD

Potential Funding Sources: SFWMD

Estimated District Participation: $ TBD FTEs: 4.00

Implementing Agency: SFWMD

Quantity of Water to be Made Available: TBD

Cost per Thousand Gallons: TBD

Table 37. Estimated Schedule and Costs for Development of a Restoration Plan for the Loxahatchee River.*

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$	$	$	$	$	$	$0
FTEs	4.00	0.00	0.00	0.00	0.00	0.00	4.00

*Costs and FTEs beyond FY'05 will be identified with development of Restoration Plan.

Recommendation S4: Establish initial reservation for Northwest Fork of the Loxahatchee River.

Description: The MFL Rule for the Northwest Fork of the Loxahatchee River states the District intends to adopt an initial reservation to protect existing water used for protection of fish and wildlife, consistent with the practical restoration goal identified for the Northwest Fork of the Loxahatchee River by 2004. The District initiated rulemaking for the water reservation in April 2004. This water reservation will be reviewed periodically and revised as conditions change, such as the changes that will occur in the region as CERP projects become operational. This provides flexibility to account for changes in implementation strategies and contingency plans during the life of the project.

Potential Elements:

A. Conduct workshops.

B. Develop final rule language.

C. Adoption of rule by Governing Board.

Total Recommendation Cost: $0

Potential Funding Sources: SFWMD

Estimated District Participation: $0 FTEs: 1.00

Implementing Agency: SFWMD

Quantity of Water to be Made Available: 0 MGD

Cost per Thousand Gallons: N/A

Table 38. Estimated Schedule and Costs for Establishing Initial Reservation for Northwest Fork of the Loxahatchee River.

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$0	$0	$0	$0	$0	$0	$0
FTEs	1.00	0.00	0.00	0.00	0.00	0.00	1.00

Recommendation S5: Review and revise the MFL and associated recovery plan for the Northwest Fork of the Loxahatchee River by 2005.

Description: By 2005, review and revise, as needed, the existing MFL and associated recovery plan for the Northwest Fork of the Loxahatchee River to consider information developed during the establishment of restoration goals and water reservations pursuant to the MFL rule.

Potential Elements:

A. Collect/compile data.

B. Develop revised criteria and documentation, if needed.

C. Peer review, if needed.

D. Conduct rule development workshops, if needed.

E. Conduct rulemaking workshops

F. Governing Board adoption of rules.

Total Recommendation Cost: $20,000

Potential Funding Sources: SFWMD

Estimated District Participation: $20,000 FTEs: 2.00

Implementing Agency: SFWMD

Quantity of Water To be Made Available: 0 MGD

Cost per Thousand Gallons: N/A

Table 39. Estimated Schedule and Costs for Reviewing and Revising, if Needed, the MFL for Northwest Fork of the Loxahatchee River.

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$20	$0	$0	$0	$0	$0	$20
FTEs	2.00	0.00	0.00	0.00	0.00	0.00	2.00

Recommendation S6: Establish MFLs for the tributaries to the Northwest Fork of the Loxahatchee River.

Description: Establishment of minimum flows and levels for the tributaries (Cypress Creek, Hobe Grove Ditch, Kitching Creek and Loxahatchee Slough) to the Northwest Fork of the Loxahatchee River are on the District's MFL Priority Waterbody List and is scheduled for 2007.

Potential Elements:

A. Collect/compile data.

B. Develop criteria and documentation.

C. Peer review.

D. Conduct rule development workshops.

E. Conduct rulemaking workshops.

F. Governing Board adoption of rules.

Total Recommendation Cost: $60,000

Potential Funding Sources: SFWMD

Estimated District Participation: $60,000 FTEs: 3.75

Implementing Agency: SFWMD

Quantity of Water To be Made Available: 0 MGD

Cost per Thousand Gallons: N/A

Table 40. Estimated Schedule and Costs for Establish MFLs for the Tributaries to the Northwest Fork of the Loxahatchee River.

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$0	$20	$40	$0	$0	$0	$60
FTEs	0.00	1.50	2.25	0.00	0.00	0.00	3.75

Recommendation S7: Complete construction of the Ten Mile Creek Project.

Description: After many years of planning and design, construction of the Ten Mile Creek Critical Restoration Project was initiated in November 2003. The project involves construction of a 550-acre reservoir (maximum depth of 10 feet) and a 110-acre stormwater treatment area (maximum depth of 4 feet). This project is located immediately west of the Varn (a.k.a. Gordy Road) Structure on Ten Mile Creek in St. Lucie County and will provide storage and treatment of storm water from the Ten Mile Creek Basin, which is the largest subbasin discharging into the North Fork of the St. Lucie River. In addition, the Ten Mile Creek Critical Restoration Project will increase surface water availability to agricultural users in the basin.

Potential Elements:

A. Construction of the project.

B. Operation of the project.

Total Recommendation Cost: $37,000,000

Potential Funding Sources: SFWMD, St. Lucie County, State of Florida Grants

Estimated District Participation: $18,500,000 FTEs: 1.0

Implementing Agency: SFWMD and USACE

Quantity of Water to be Made Available: 6,000 acre-feet of storage provided for the entire project

Cost per Thousand Gallons: N/A

Table 41. Estimated Schedule and Costs for construction of the Ten Mile Creek Critical Restoration Project.*

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$7,894	$70	$0	$0	$0	$0	$7,964
FTEs	0.5	0.5	0.00	0.00	0.00	0.00	0.00

*Large portion of project cost expended in FY'04.

Recommendation S8: Implement CERP Indian River Lagoon – South Project Implementation Report.

Description: The District should actively pursue federal authorization for the Indian River Lagoon (IRL) – South Project Implementation Report (PIR), and construct the project to manage of freshwater flows to the St. Lucie River and Indian River Lagoon.

Potential Elements:

A. Secure authorization of IRL – South Project.

B. Obtain federal funding appropriation for IRL – South Project.

C. Construct project.

D. Operate and maintain project.

Total Recommendation Cost: $1,200,000,000

Potential Funding Sources: SFWMD, State of Florida, USACE, County Governments, USDA-NRCS

Estimated District Participation: $600,000,000 FTEs: 5.00

Implementing Agency: SFWMD

Quantity of Water to be Made Available: 135,000 acre-feet of storage; 23.48 MGD for human water supply

Cost per Thousand Gallons: N/A

Table 42. Estimated Schedule and Costs for Implementation of CERP Indian River Lagoon – South Project Implementation Report.*

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$136,000	$190,000	$173,000	$24,000	$4,000	$1,600	$528,600
FTEs	5.00	6.00	6.00	6.00	5.00	4.00	32.00

*Portion of project cost expended prior to FY'05.

Recommendation S9: Conduct study of connecting SFWMD's C-25 Basin with the SJRWMD's C-52 and Upper St. Johns River Basin Project.

Description: This is a cooperative study between the SFWMD and SJRWMD to evaluate the feasibility of connecting the SFWMD's C-25 Basin with the SJRWMD's C-52 and Upper St. Johns River Basin Project. The study would identify the benefits and estimated costs of such a connection.

Potential Elements:

A. Develop scope of work/services.

B. Solicit and choose contractor.

C. Complete study.

D. Implement recommended course of action.

Total Recommendation Cost: $100,000

Potential Funding Sources: SFWMD & SJRWMD

Estimated District Participation: $50,000 FTEs:0.25

Implementing Agency: SFWMD

Quantity of Water To be Made Available: 0 MGD

Cost per Thousand Gallons: N/A

Table 43. Estimated Schedule and Costs to Conduct Basin Connection Study.

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$50	$0	$0	$0	$0	$0	$50
FTEs	0.25	0.00	0.00	0.00	0.00	0.00	0.25

Surface Water - Water Supply Development Recommendations

There are no surface water supply development recommendations regarding Surface Water.

SURFICIAL AQUIFER SYSTEM (SAS)

The Surficial Aquifer System (SAS) is the predominant source of water for public water supply and urban irrigation in the UEC Planning Area. The Surficial Aquifer is easily recharged from the surface and is found from land surface to about 200 feet below land surface. Wellfields using the Surficial Aquifer can be limited by the rate of recharge and water movement in the aquifer, environmental impacts, proximity to contamination sources, saltwater intrusion and other existing legal users in the area.

SAS – Quantity of Water Available

Based on the 1998 Plan analysis and information contained in **Chapter 4**, from a regional perspective, increases in production from the SAS along the coast beyond existing demands appears limited due to potential wetland impacts, and increased potential for saltwater intrusion. However, it was concluded that some further development of the SAS can be accomplished in these areas at the local level through modifications to wellfield configurations and pumping regimes with respect to locations of wetlands and salt water. As a result, additional withdrawals from the SAS in these coastal areas will be evaluated on a project-by-project basis in the planning areas. The volume of water that could be withdrawn by any specific user must be determined through the District's CUP Program.

SAS – Water Resource Development Recommendations

Listed below are water resource development recommendations regarding the Surficial Aquifer System:

Recommendation SA1: Develop tools so that Surficial Aquifer System modeling can be incorporated into the next Five Year Update of the UEC Plan.

Description: The District will improve and update modeling tools in order to conduct Surficial Aquifer System modeling as part of the next update to this Plan.

Potential Elements:

A. Review available Hydrogeologic and hydrologic data and update database accordingly.
B. Enhance and recalibrate existing Martin and St. Lucie County SAS models with new data and technology.
C. Prepare data sets for base and projected year simulations.
D. Conduct plan model runs and present results.
E. Conduct alternative analysis.
F. Document and conduct peer review.

Total Recommendation Cost: $300,000

Potential Funding Sources: SFWMD

Estimated District Participation: $0 FTEs: 4.50

Implementing Agency: SFWMD

Quantity of Water To be Made Available: 0 MGD

Cost per Thousand Gallons: N/A

Table 44. Estimated Schedule and Costs for SAS Modeling.

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$0	$0	$100	$100	$100	$0	$0
FTEs	0.00	0.00	1.50	1.50	1.50	0.00	4.50

SAS - Water Supply Development Recommendations

Listed below are water supply development recommendations regarding the Surficial Aquifer System:

A. The potential of using the SAS for new and expanded uses will be evaluated on a project-by-project basis through the District's consumptive use permitting process.

B. Water users should consider development of alternative water sources that reduce reliance on the SAS for future demands.

RELATED STRATEGIES

This section includes those recommendations effort that apply to several options or could not be associated with a specific option.

Recommendation RS1: Coordinate 2004 UEC Plan with other efforts.

Description: Coordinate the 2004 Upper East Coast Water Supply Plan recommendations with other regional planning efforts with other regional planning efforts, including development of the Lower East Coast Regional Water Supply Plan, CERP North Palm Beach County Project Part 1, Ten Mile Creek Critical Restoration Project, Indian River Lagoon – South PIR, and others.

Potential Elements:

A. Monitor other efforts.

B. Actively participate and coordinate UEC Water Supply Plan recommendations in other planning area efforts.

Total Recommendation Cost: $0

Potential Funding Sources: SFWMD

Estimated District Participation: $0 FTEs: 1.20

Implementing Agency: SFWMD

Quantity of Water To be Made Available: 0 MGD

Cost per Thousand Gallons: N/A

Table 45. Estimated Schedule and Costs to Coordinate 2004 UEC Plan with Other Efforts.

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$0	$0	$0	$0	$0	$0	$0
FTEs	0.20	0.20	0.20	0.20	0.20	0.20	1.20

Recommendation RS2: Ensure the timely coordination of local government land use planning and SFWMD regional water supply planning.

Description: The District will share vital water supply planning information with local governments as it is developed. This information includes, but is not limited to, the projection of anticipated future demands, identification of existing and future sources of available water, sustainability of water resources and natural systems and technical assistance on other related issues, such as water conservation and reuse. The District will provide this information and technical assistance on water supply development issues at the local government level throughout the planning horizon.

Potential Elements:

A. Assist individual local governments in their efforts to develop 10-year Water Supply Facility Work Plans.
B. Provide technical assistance to local governments for preparation of water supply related sections of their Evaluation and Appraisal Reports (EARs).
C. Continue to review and comment on water supply related issues of local government comprehensive plans and associated amendments.
D. Continue to seek active participation of local governments in regional water supply planning/updating efforts.
E. Continue to provide funding assistance to local governments in their quest for Alternative Water Supply (AWS) development.

Total Recommendation Cost: $0

Potential Funding Sources: SFWMD

Estimated District Participation: $0 FTEs: 2.90

Implementing Agency: SFWMD

Quantity of Water To be Made Available: 0 MGD

Cost per Thousand Gallons: N/A

Table 46. Estimated Schedule and Costs for Coordination of UEC Plan with Local Governments.

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$0	$0	$0	$0	$0	$0	$0
FTEs	0.60	0.50	0.50	0.40	0.40	0.50	2.90

Recommendation RS3: Continue the Alternative Water Supply Funding Program (Districtwide).

Description: The District will continue the Alternative Water Supply (AWS) Funding Program to facilitate implementation of cost-effective and appropriate alternative water supplies, such as reuse and development of the Floridan Aquifer through membrane technology.

Potential Elements:

A. Modify criteria to provide more weight to scoring criteria, which incorporate direction of regional water supply plans.
B. Solicit AWS projects on an annual basis.
C. Conduct public workshops throughout the District.
D. Selection Committee to rank approved projects.
E. Governing Board to determine funding.

Total Recommended Cost: $27,000,000 ($4,500,000 per year)*

Potential Funding Sources: SFWMD

Estimated District Participation: $27,000,000* FTEs: 24.00*

Implementing Agency: SFWMD

Quantity of Water to be Made Available: 300 MGD from FY 2005 through FY 2010*.

Cost per Thousand Gallons: Not available

Table 47. Estimated Schedule and Costs for Alternative Water Supply Program.*

Cost	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	Total
Dollars ($1,000)	$4,500	$4,500	$4,500	$4,500	$4,500	$4,500	$27,000
FTEs	4.00	4.00	4.00	4.00	4.00	4.00	24.00

*Districtwide

FUNDING

This section addresses the funding strategy and options for implementation of this Water Supply Plan. The approach takes into account the requirements of Chapter 373, F.S., which requires water supply plans to include a funding strategy that is reasonable and sufficient to pay the costs of constructing or implementing all of the water resource development projects.

In general, the funding approach is divided into two major categories: water resource development and water supply development. The water resource development category addresses funding for projects that are primarily the responsibility of the District. Water supply development projects, on the other hand, are primarily the responsibility of local governments, utilities and other water users. However, information is included on programs that target funding of water supply development projects in general.

Water Resource Development

Water resource development projects are generally regional in nature and are primarily the responsibility of the District. Water resource development projects include: collection and evaluation of surface and groundwater data, structural and nonstructural programs to protect and manage water resources, construction, operation and maintenance of regional public works facilities and technical assistance to local governments and water users. The water resource development projects for the UEC Planning Area were itemized earlier in this chapter. In addition, pursuant to Chapter 373, F.S., each water management district governing board is required to include in its annual budget the amount needed for the fiscal year to implement water resource development projects, as prioritized in its regional water supply plans. In addition to this Plan, the District is also developing updates of the regional water supply plans for the three other planning areas that encompass the District. All updates are scheduled to be completed by the end of 2005.

Besides implementation of the water supply plans, the SFWMD is implementing the $8 billion CERP, a cost-shared effort with the U. S. Army Corps of Engineers (USACE). The recommendation tables in this Plan show the costs of the projects and potential sources of funding. Timeframes for completing the projects are preliminary and are subject to funding availability in the future years.

The traditional funding source for these types of projects has been primarily ad valorem taxes. Non-CERP projects, most of those listed in this Plan, will be ranked and prioritized along with projects in all other regional water supply plans during annual District budget preparation, and funded as money is available. Priority considerations for a project include availability of a cost-share partner and if a project makes "new" water available. Sustainability of the regional system is also an important consideration of project prioritization.

Some of the recommendations in this Plan are studies. These studies may result in construction projects at a later date. Funding associated with these will be addressed at that time. Potential funding sources for water resource development include funds provided on a project-by-project basis by the SFWMD's budget.

Water Supply Development

Water supply development projects are local in nature and generally involve planning, design, construction, operation and maintenance of facilities for water collection and storage, production, treatment, transmission and distribution for resale or end use. Chapter 373, F.S. states that, “local governments, regional water supply authorities and government-owned and privately owned water utilities take the lead in securing funds for and implementing water supply development projects. Generally, direct beneficiaries of water supply development projects should pay the costs of the projects from which they benefit, and water supply development projects should continue to be paid for through local funding sources." It is not the intent that regional water supply plans mandate actions to be taken by local agencies, utilities and other water users. Therefore, the overall theme of this section is to provide direction and assistance, but not to mandate directives to local governments or utilities.

Chapter 373, F.S. requires water supply plans to identify potential sources of funding for water supply development projects. In addition to funding the projects themselves through utility rates, there are several other funding programs to assist local entities.

District’s Alternative Water Supply Funding Program

The District’s Alternative Water Supply (AWS) Funding Program is based upon statute adopted by the Florida Legislature in 1995 to increase the potential for the development of alternative water supplies in the state; assist utilities in developing cost-effective reclaimed water supplies; and fulfill a public purpose to fund such programs. Since FY 1997, the District has funded 139 projects for a total cost of approximately $28 million. These projects have created an additional 337 MGD.

The AWS Funding Program is a cost-share program and requires a project’s sponsor to provide a portion of the funding for the project. The District publishes guidelines for implementing this program that are consistent with the statutory language

provided below. These guidelines address the application and review process, ranking criteria and the timeframe for implementation.

To be considered for this funding support, the project must be consistent with the local government comprehensive plan and the District's regional water supply plans. The local government must require all appropriate new facilities within the project service area to connect and use the project's alternative water supplies. Funding support shall be applied only for capital or infrastructure costs for the construction for alternative water supply systems and the project must fall within guidelines established by the District.

Projects are scored and ranked by a selection committee of non-SFWMD representatives from utilities, environmental and agricultural interests. They score and rank submitted project proposals based on criteria from the enabling legislation, and the SFWMD. The District's Governing Board approves funding of the selected projects.

Water Savings Incentive Program

The District's Water Savings Incentive Program or WaterSIP was established by the District's Governing Board in 2002 as an initiative to help implement water-efficiency measures that reduce water use demands. Projects eligible for funding under this program are non-capital in nature, meaning not part of a public water provider's or user's capital improvement program. In three years, this program has provided $700,000 for 19 projects Districtwide. Projects funded included automatic flushing devices, pressure stabilization valves and rain shutoff device incentive programs.

The WaterSIP is a cost-share program and requires a project's sponsor to provide matching funds for the project, unless the project is in an area defined in the rural economic development initiative. The project must be completed within one year. Annually, the District publishes guidelines for applying to this funding program annually. These guidelines address the application and review process, ranking criteria and the timeframe for implementation. In the three years the program has been in place, a total of 311 MGY or 852,000 GPD of water has been saved or offset.

Drinking Water State Revolving Fund Program

The Drinking Water State Revolving Fund (SRF) Program is administered by FDEP and provides low-interest loans to eligible entities for planning, designing and constructing public water facilities. Federal and state appropriations fund the SRF. It is a "revolving" fund because loan repayments are used to make additional loans. By federal law, the SRF is to be operated in perpetuity. The FDEP solicits project information each year from January 1 to February 15. The information is used to establish the project priority list for the following annual cycle. Funds are made available for pre-construction loans to rate-based public water systems, construction loans of $75,000 minimum or more and pre-construction grants and construction grants to financially disadvantaged communities. The loan terms include a 20-year (30-year for financially disadvantaged communities) amortization and low-interest rates. Small community assistance is

available for communities having populations less than 10,000. Each year 15 percent of the funds are reserved exclusively for their use. In addition, small communities may qualify for loans from the unreserved 85 percent of the funds.

Further information on the Drinking Water SRF can be found at: http://www.floridadep.org/water/wff/dwsrf/index.htm.

State Revolving Fund Loan Program for Water Pollution Control

The State Revolving Fund (SRF) Water Pollution Control Program is administered by FDEP and provides low-interest loans for planning, designing and constructing water pollution control facilities. Federal and state appropriations have funded the SRF. Like the Drinking Water Loan Program, the Water Pollution Control Program is a "revolving" fund because loan repayments are used to make additional loans. By federal law, the SRF is to be operated in perpetuity. The FDEP solicits project information each year. The information is used to establish project priorities for the following annual cycle. Funds are made available for preconstruction loans and construction loans. The loan terms include a 20-year amortization and low-interest rates. Preconstruction loans are available to all communities and provide up-front disbursements for administrative services, project planning and project design.

Further information on the SRF Water Pollution Control Program can be found at: http://www.floridadep.org/water/wff/cwsrf/index.htm.

RELATIONSHIP OF PROJECTS TO FIVE-YEAR WORK PROGRAM

The District prepares a Five-Year Water Resource Development Work Program annually. This report is submitted to FDEP, and documents the District's progress in implementing water supply plan recommendations. The timeframe or horizon for the Work Program is a five year minimum. For each recommendation, the work program provides:

- The cost of the project.
- An estimate of the amount of water to become available by implementing a project.
- Funding source(s).
- Implementing agency(s).
- A summary of any changes to the recommendation since the plan was implemented.
- Timetables.

The recommendations in this Plan will be incorporated into the Five-Year Water Resource Development Work Program following Governing Board approval of the Plan.